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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/576,513

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Juergen Fortin

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EXAMINER

JANG, CHRISTIAN YONGKYUN

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3735

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/576,513	Applicant(s) FORTIN ET AL.	
	Examiner CHRISTIAN JANG	Art Unit 3735	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 March 2011.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 17-35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 17-35 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 17-20, 22, 24-28, 31, and 33-35 are rejected under 35 U.S.C. 102(b) as being anticipated by Wesseling (USP #4,510,940).

3. As to claims 17 and 25, Wesseling teaches a method and corresponding device for controlling the pressure in a cuff of a BP measuring apparatus (1) with a plethysmographic sensor device (4) comprising the following steps of an inner control loop wherein the BP is used as a control variable and is fed into a difference amplifier as a first input signal (claim 18 - a parallel PID circuit responsive to pressure in the pressure cuff and a state switch connected to the pressure valve and fed into a differential amplifier), a second outer control loop wherein the PG signal, with its mean value suppressed, is fed into a controller and is added to a set point signal, generating a target signal SW and fed into a difference amplifier as a second input signal (claim 18 - plethysmograph with a control loop with a differential amplifier and memory circuit in the feedback circuit, the differential amplifier inherently suppressing the mean value) and the output signal is used to control at least one valve which in turn regulates the pressure in the cuff (claim 18 - the memory circuit adjusts the servo-reference level and the state switch is connected to the pressure valve; claim 1 - the adjustment of the

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servo reference level adjusts the valve so that the cuff pressure corresponds with the momentary arterial pressure).

4. As to claim 18, Wesseling teaches the use of a mean value PG to be used as an input signal of the second control loop (col. 11 line 58 to col. 12 line 2).

5. As to claim 19, Wesseling teaches amplification parameters P, I, and/or D is optimized and continuously corrected as inputs to the controller (PID circuit 8).

6. As to claim 20, Wesseling teaches a control loop wherein set point signal SP is readjusted depending on the integral of the PG (col. 7 lines 56 to col. 8 line 12).

7. As to claim 22, Wesseling teaches a control loop wherein SP is readjusted in dependence of the pulse waveform of the BP (col. 6 lines 8-28).

8. As to claim 24, Wesseling teaches a control loop wherein BP is fed to a systole/diastole detector whose output is used as control variable (col. 5 lines 21-49).

9. As to claim 26, Wesseling teaches a difference amplifier (7) and a summation unit (col. 7 lines 7-17).

10. As to claims 27 and 28, Wesseling teaches the computing of an initial value for the mean value of PG and set point signal SP (col. 1 lines 5-29 - initial adjustment of servo-reference level sets both the mean value of PG and set point signal SP as both are dependent upon them).

11. As to claim 31, Wesseling teaches a difference amplifier is designed as a comparator which actuates the at least one digital switching valve for pressure regulation in the cuff (col. 12 lines 24-40).

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12. As to claim 33, Wesseling teaches that the light source is furnished with circuitry for controlling the voltage or current (col. 4 lines 6-15).

13. As to claim 34, Wesseling teaches a finger cuff (Fig. 5).

14. As to claim 35, Wesseling teaches a PID-controller (8).

Claim Rejections - 35 USC § 103

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

16. Claims 21 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wesseling (USP #4,510,940) in view of Korhonen et al. (USP #7,367,949).

17. As to claim 21, Wesseling teaches a control loop wherein the SP is readjusted on the basis derived quantities (col. 5 lines 25-40), but fails to teach the use of a fuzzy logic approach. Korhonen, in a method for monitoring the condition of a patient using inputs such as plethysmographic or blood pressure measurements teaches that the mathematical index can utilize fuzzy logic in its mathematical combinations (col. 13 lines 45-59). As Wesseling teaches the use of various mathematical combinations, the use of fuzzy logic would enable a form of multi-valued logic approach that is well known and utilized within the art of endeavor and across multiple arts. As such, it would have been obvious to one of ordinary skill in the art to modify the control loop of Wesseling to utilize fuzzy logic to adjust the set point signal by using a well established method that allows for predictable results and would have been obvious to try.

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18. As to claim 23, Korhonen teaches the use of artificial neural networks (col. 13 lines 45-59). As such, it would have been obvious to one of ordinary skill in the art to modify the control loop of Wesseling to utilize fuzzy logic to adjust the set point signal by using a well established method that allows for predictable results and would have been obvious to try.

19. Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wesseling (USP #4,510,940) in view of Hatschek (USP #4,459,991).

20. As to claim 29, Wesseling does not teach that the difference amplifier connects to an inlet valve via a non-inverting amplifier unit and an outlet valve via an inverting amplifying unit. However, Hatschek teaches a cuff where the differential amplifier (101) utilizes inverting and non-inverting inputs of the operator (107 and 109) to open or close valve (37). As such it would have been obvious to modify the device of Wesseling to utilize a valve control setup that is well established as it would be obvious to try.

21. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wesseling (USP #4,510,940) in view of Lichowsky (USP #3,905,354).

22. As to claim 30, Wesseling does not teach proportional valves. However, Lichowsky teaches proportional valves to be used in a blood pressure cuff (14, 17; claim 4). As such it would have been obvious to modify the device of Wesseling to utilize a valving setup that is well established as it would be obvious to try.

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23. Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wesseling (USP #4,510,940) in view of Asada et al. (US 2002/0169381).

24. As to claim 32, Wesseling does not teach a device for elimination of stray or ambient light. Asada, in a plethysmograph used on a finger, teaches the use of components which serve as a shield to prevent ambient light from reaching the detector ([0022]). Since ambient light would add undesirable signal noise, it would have been obvious to one of ordinary skill in the art modify the device of Wesseling to utilize components which would act as a shield to eliminate stray or ambient light from reaching the plethysmograph.

Response to Arguments

25. Applicant's arguments filed 3/21/11 have been fully considered but they are not persuasive.

26. Applicant has argued that contrary to Wesseling, the control loop is only responsible for the actual cuff pressure. In particular, while not explicitly stated, it appears that the applicant believes that the servo-reference as taught by claim 18 of Wesseling does not equate to a cuff pressure signal. However, as Wesseling teaches that the servo-reference level is used to adjust the cuff pressure to continuously correspond with the arterial pressure, thereby allowing for arterial pressure to be read from the fluid pressure, the examiner sees no distinction between Wesseling and the claim as it currently stands (cuff pressure signal).

27. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies

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(i.e., not requiring the circuitry to move into open-loop operation) are not recited in the rejected claim(s). In particular, the applicant has argued that the instant invention describes **concentric interlocking loops** where fast disturbances are related to the inner interlocking loops whereas slower disturbances are handled by outlying loops, thereby describing only active closed-loop operation, nor does it negatively recite limitations such as state switches. As such, the claims do not recite such features upon which the argument relies. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Conclusion

28. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHRISTIAN JANG whose telephone number is (571)270-3820. The examiner can normally be reached on Mon-Friday (9-5).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles Marmor can be reached on 571-272-4730. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Patricia C. Mallari/
Primary Examiner, Art Unit 3735

CJ
/C. J./
Examiner, Art Unit 3735
6/1/11